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IX.—ON ZIPHIUS SOWERBIENSIS. By WILLIAM ANDREWS, ESQ.

[Abstract.]

[Read April 8, 1867.]

IN the year 1800 was cast ashore on the coast of Elginshire, Scotland, a fine specimen of a Cetacean, which Mr. Brodie, of Brodie House, near whose place it was stranded, considered to be so novel, and so strange in its characters, that he sent a description of the animal, with the skull, jaws, and teeth, to Mr. James Sowerby, of London.

This led to a most interesting discussion among the *savans* at a soiree at Sir Joseph Banks'; and, as no Cetacean of the kind had ever been recorded, it was named "Physeter bidens," from the peculiarity of having only two teeth—one in the central part of each inferior maxillary. This rare Cetacean proved to be a male.

In the year 1804 was discovered on the coast of Provence, in the fossil state, a portion of the skull and jaws of a dolphin, which the eminent Cuvier decided to be a species that had no recent existence, but was a relic of a destroyed creation. From that specimen Cuvier formed the genus Ziphius, terming the species cavirostris.

In 1809 were detected, when digging the basin at Antwerp, other fossils allied to the same genus. The portions of the rostri or beaks, having, however, some characteristic differences, caused Cuvier to constitute two other species "*longirostris*," and "*planirostris*."

The skull, with the jaws of Sowerby's Cetacean, had been placed in the Museum at Oxford. From that specimen Doctor J. E. Gray, F. R. S., of the British Museum, and who has published so valuable a catalogue of all known Cetacea, had figured, *Physeter bidens*, in the Zoology of the "Erebus" and "Terror." De Blainville, when visiting England, on seeing those figures, at once recognised Sowerby's animal as identical with Cuvier's fossils genus Ziphius; and the fact was so completely established, as to decide that *Physeter bidens* was an original discovery in the living state of a Cetacean that was supposed to have had no existence. Hence became recorded in our Fauna the genus Ziphius, and the species Sowerbiensis.

In September, 1825, was stranded at Havre a species of dolphin new to science, which M. de Blainville described, as *Delphinorhynchus dalei;* and the following year, 1826, was cast ashore at the mouth of the Orne, Calvados, another of the same species.

Du Mortier described as *Delphinorhynchus micropterus* one that had been cast ashore in August, 1835, near the port of Ostend. Another, agreeing with Cuvier's *Delphinorhynchus micropterus*, was taken at the mouth of the Seine.

These were all females, and have been described by Continental authorities under different generic and specific appellations.

It is, however, clearly seen that they are all of the same genus and species; and, although recorded by French zoologists as distinct from

Sowerbiensis, yet it is with some reason considered that *Ziphius Sowerbiensis,* the only male specimen that had at the time been discovered, was the male species of that genus, and that the species micropterus was the female; the difference in the great development of the teeth in the male specimen, and the non-existence or rudimentary state of the teeth in the other, being viewed as sexual.

The subject of the discovery now recorded was obtained stranded on the shore of Brandon Bay, coast of Kerry, Ireland, on the 9th of March, 1864.

The skull and jaws, with the teeth, are identical in every respect with the specimen in the Museum at Oxford; it is remarkable as being only the second male specimen known to the European Fauna. The most valuable points in the details given of this discovery are the photographs that were taken of the head of the animal in the recent state, and which have enabled many most important and unrecorded observations to have been made and confirmed, with regard to the peculiar characteristics of the formation of the jaws, and action of the teeth, of this very rare Cetacean.

Thus, of six of these animals that have been recorded as European, four were females, and two were males; the two latter having only been met with on the shores of Scotland and Ireland.

X.—On the Formation of Ground Ice in the Bed of the River Dodder. By Professor Hennessy, F. R. S.

[Read April 8, 1867.]

The formation of ice under flowing water seems to have been long known to boatmen engaged in navigating the rivers of northern and central Europe. At first it was regarded with doubt by many physical inquirers, and its universal recognition as a well-established natural phenomenon has taken place only within a comparatively recent period. Among the properties of water, it would be impossible to name one more remarkable or better known than its loss of density in passing from the liquid to the solid state. The precise determination of the maximum density of water at nearly eight degrees (Fahrenheit) above the freezing point appears still further to interpose a difficulty with regard to the growth of true subaqueous ice; but, when all the circumstances under which such ice is stated to have been formed are fully taken into consideration, this difficulty disappears, and ground ice is seen to be the result of general physical laws.

At the beginning of January in the present year, an instance of the formation of ground ice in the bed of the Dodder* came under my ob-

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* For the information of readers who are not acquainted with the neighbourhood of Dublin, it may be necessary to state that the Dodder is a stream which rises among the mountains, at a distance, measured in a straight line, of about twelve miles S. S. W. from the city; and that, after sweeping round the south suburban villages for three miles of its course, it falls into the bay, close to the mouth of the Liffey.